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ABSTRACT

The educational media competencies identified as most important by Alabama student teachers, the competencies they feel that they possess, and the relationship between perception of competency level and importance was investigated for majors in five programs: special education, N-12 certification, elementary education, early childhood education, and secondary education. Subjects were 518 student teachers in the latter half of their student teaching experience at 15 Alabama universities during the spring of 1982. Data were collected through the Inventory of Teacher Competencies Related to Educational Media, which includes a Likert-type scale of 69 structured items to assess perception of importance and level of competencies in educational media. Findings showed significant positive correlations between the upper 10 ranked competencies and the lower 10 ranked competencies for importance and competency level, and indicated that student teachers received traditional preparation in educational media. There were no significant differences in the perceived importance of the competencies within the five programs, or in the levels of competence. The four inventory items related to microcomputer operation received the lowest ratings of importance and competency level. Appendices include lists of participating institutions, and competencies ranked by importance as indicated by mean scores. Eleven references are listed. (LMM)

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STUDENT TEACHER PERCEPTIONS OF TEACHING COMPETENCIES RELATED TO EDUCATIONAL MEDIA

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Introduction

Indications of a persistent lack of confidence in American education are reflected by the publication each year of the results of the "Gallup Poll of the Public's Attitudes Toward the Public Schools." A review of the reports in issues of Phi Delta Kappan from 1974-1980 revealed a steady decline in the ratings ("12th Annual Gallup," 1980). The search for an explanation for the espoused weaknesses in the schools has focused substantial attention on the effectiveness of classroom teachers and their professional preparation.

Considerable research has identified skills, competencies, and characteristics that correlate positively with effective teaching (e.g. Medley, 1973; Rosenshine, 1976; Ryans, 1960). One of the competencies consistently identified by the intense exploration by researchers and practitioners is the teacher's ability to design instruction utilizing educational technology ("A Framework," 1978; Schmitthausler, 1975). Moldstad (1974) summarized the findings:

1. Significantly greater learning often results when media are integrated into the traditional instructional program.
2. Equal amounts of learning are often accomplished in significantly less time using instructional technology.
3. Multimedia instructional programs based upon a "systems approach" frequently facilitate student learning more effectively than traditional instruction.

4. Multimedia and/or audiotutorial instructional programs are usually preferred by students when compared with traditional instruction. (p. 390)

However, the extensive benefits to be derived from instructional media can be attained only by teachers who are competent in their use. Wilkinson (1980) emphasized that "Media are more effectively and efficiently used, and therefore have greater impact on students, when teachers have received specific training in their utilization" (p. 39).

The role of educational media in classroom instruction with implications for teacher preparation has been a focal point of the increased attention to quality of programs. In a comprehensive assessment of the status and trends of teacher preparation sponsored by the National Center for Education Statistics in 1975, the contribution of instructional technology was one of five central questions investigated (Steele, 1977).

The primary accrediting agency of teacher education programs in the nation, the National Council for the Accreditation of Teacher Education, has adhered to the previously documented principles of media research. Standard 2.3.3 Curricula for Basic Programs, Teaching and Learning Theory with Laboratory and Clinical Experience, stated:

> There is a body of knowledge about teaching and learning that should be the basis for effective performance. Certain kinds of problems (such as planning, selection of learning resources . . .) represent recurring types of classroom situations. (p. 6)

And specific reference was made in Standard 5.2, Materials and Instructional Media Center:

> Modern media and materials are essential elements in the communications system of contemporary society. For this reason, teachers need to understand the technologies that make such media and materials usable in their teaching and need to possess skills in using them . . . . A program for the preparation of teachers includes the use of teaching-learning materials and instructional media (so that) . . . prospective teachers are instructed in how to devise and use modern technologies in their teaching. ("Standards for Accreditation," 1981, p. 10)

It seems that the extent to which preservice programs provide for the development of media competencies of teachers is a fundamental concern; but, differences in perception of the field tended to cause its application in "bits and pieces" rather than as a process. Nelson (1976) exemplified this problem in the study of educational media for teachers in Oregon. He concluded: "While all newly certified teachers will have 'preparation in educational media,' their competencies will vary widely" (abstract).

It is logical to expect that teachers who have not had formal preparation will not possess the competencies that are needed to utilize multimedia approaches to teaching. According to research by Camp (1957), Streeter (1969), and Branscombe (1969), there was a positive correlation between teachers' competencies and their frequency of educational media utilization. A study by Rogers

(1978) of factors affecting teachers' utilization concurred, and yielded further evidence that the strongest relationships were between attitude and use.

While the incorporation of educational media and student achievement are positively correlated, studies have reported a large population of teachers who do not consistently utilize educational technology. The research indicates that these teachers have not been prepared in this area at the preservice level. Preliminary research revealed that the actual practice of providing educational technology competencies for teachers in preservice programs was inadequate due to two factors:

(a) lack of an identifiable set of specific competencies correlated with teacher effectiveness; (b) lack of current measures to assess the status of teacher preparation in educational media.

A study by Ernest (1981) utilized the Delphi technique to identify the most important teacher competencies related to educational media in the preparation of teachers at the preservice level. Of the 69 competencies identified, 64 had means of 3.00 or above out of 4.00, in the "moderately important" or "very important" range. The rankings of the competencies by categories by the Delphi experts are shown in Table 1:

Table 1

Rank of Categories by Importance by Experts

Category	Rank	Mean
Equipment Operation	1	3.65
Selection and Utilization Principles	2	3.59
Communication Principles/ Mass Media	3	3.49
Systems Approach/ Instructional Design	4	3.39
Evaluation of Media, Instruction	5	3.28
Production Techniques	6	3.27
Visual/Aural/Computer Literacies	7	3.19

The findings in the study revealed a significant positive correlation between the perceptions of the Delphi panel of experts and the personnel in the teacher education programs in Alabama. However, there was not a significant positive correlation between the Delphi rankings and the extent to which the competencies were taught in the Alabama institutuions. It was concluded that provision for preservice preparation had not been at a level consistent with the perceptions.

Statement of the Problem

Findings from research indicate that attitude and competence are the most significant factors determinging utilization of educational media. This study was designed to assess the perceived importance of each of a set of identified competencies by student teachers in teacher preparation programs in Alabama. In addition, the study assessed the level of competence of each of the competencies by the student teachers. The need to determine attitude and competence of student teachers was illuminated when findings of a study (Ernest, 1981) in Alabama revealed that teacher educators perceived educational media teaching competencies as "very important," but the competencies were not taught to a comparable extent. This discrepancy prompted further investigation.

The following research questions were investigated in the study:

1. What educational media teaching competencies are identified as most important by student teachers in Alabama?
2. In what educational media teaching competencies do the student teachers possess the greatest competence?
3. What is the relationship between the competencies perceived most important and the competencies in which the student teachers possess the greatest competence?
4. What is the relationship between perceptions of importance and competence level as identified by the five majors?

Methodology

Sample

The sample was composed of student teachers in the latter half of their student teaching experience at 15 universities in Alabama during the spring semester/quarter, 1982. Participating institutions are listed in Appendix A. A total of 531 completed instruments was received; 13 were disregarded due to insufficient responses. The resulting sample of 518 was comprised of five majors. The frequency and percentage by major is presented in Table 2:

Table 2

Frequency and Percentage by Major

Major	Frequency	Percentage
Special Education	44	8.5
N-12 Certification	105	20.3
Elementary Education	131	25.3
Early Childhood Education	88	17.0
Secondary Education	150	29.0
Total	518	

Instrumentation

The instrument, entitled Inventory of Teacher Competencies Related to Educational Media, was derived from the study by Ernest (1981). It consisted of two parts: (a) institution and major information of the respondent, and (b) 69 structured items to assess the respondent's perception of importance and level of competence in educational media competencies.

The instrument was to determine the degree to which respondents felt each competency was important as a basic teaching competency to be mastered by classroom teachers. Responses were requested on the following 4-point Likert-type scale:

1 = little or no importance

2 = somewhat important

3 = moderately important

4 = very important

The level of competence gained through courses in education prior to student teaching was assessed on the following scale:

1 = no competence

2 = minimal competence

3 = moderate competence

4 = strong competence

The instruments were sent to the Directors of Student Teaching at each of the institutions. The student teachers completed the instruments on campus under the supervision of teacher education personnel. The completed instruments were returned to the researchers for analysis.

Data Analysis

Frequencies, percentages, means, and rank order tabulations were calculated for each item for importance and competence. Frequencies, percentages, and means for each item by major were computed. The significance of the differences at the .05 level

by competence and importance by major were determined by utilization of the chi square statistic.

Results

The data were utilized to answer systematically the four research questions.

Perceptions of Importance

The means ranged from 1.679, "little to somewhat important," to 3.560, "very important." The ranked competencies are shown in Appendix B. Nineteen items had means of 3.000 or higher, indicating they were perceived as "moderately important." No items from Category A, Visual/Aural/Computer Literacies or Category G, Evaluation of Media, Instruction, were in this group. Four items had means of 3.500 or higher, "very important:"

Item	Rank	Mean	Competency
59	1	3.560	Name and define the three domains of learning (cognitive, affective, psychomotor)
30	2	3.518	Operate cassette tape recorder
48	3	3.503	Describe characteristics and appropriate teaching/learning situations for chalkboards
29	4	3.500	Operate record player

Four items had means lower than 2.000, "little to somewhat importance:"

Item	Rank	Mean	Competency
34	69	1.679	Operate microcomputer to utilize commercially prepared software
6	68	1.722	Design teaching/learning strategies incorporating the use of micro-computers
7	67	1.859	Develop understanding of current and expected developments in the telecommunications/computer area
39	66	1.881	Describe characteristics and appropriate teaching/learning situations for computer assisted instruction

Levels of Competence

Analysis of these data revealed that the means ranged from 2.057, "minimal competence," to 3.603, "strong competence." Thirty-eight items (more than ½) had means of 3.000 or higher, indicating "moderate" to "strong competence." Three items had means of 3.500 or higher:

Item	Rank	Mean	Competency
48	1	3.603	Describe major characteristics and appropriate teaching/learning situations for chalkboards
29	2	3.552	Operate record player
30	3	3.547	Operate cassette recorder

The lower four rankings were comprised of items with means of 2.500 or lower, indicating "minimal" to "moderate competence:"

Item	Rank	Mean	Competency
6	69	2.057	Design teaching learning strategies for microcomputers
34	68	2.147	Operate microcomputer to utilize commercially prepared software
39	67	2.233	Describe characteristics and appropriate teaching/learning strategies for computer assisted instruction
7	66	2.276	Develop understanding of current and expected developments in the telecommunications/computer area

Importance/Competence Relationship

Determination of the relationship between importance ratings and levels of competence was made by analysis of the rank orders of the items derived from the means. There was a significant positive relationship between the upper 10 ranks and the lower 10 ranks of the two scales.

Importance/Competence Relationship by Major

The relationship between majors (Special Education, N-12 Certification, Elementary Education, Early Childhood Education, and Secondary Education) and importance and majors and competence was tested for each item by the chi square statistic. The number of responses classified in each category scale was compared by major. Results indicated a discrepancy between majors by

importance on 36 of the 69 items at the .05 level, 5 at the .0001 level:

Item	Significance	Competency
4	.0000	Strategies for visual literacy
10	.0000	Produce laminated visual
49	.0001	Describe characteristics, teaching/learning situation for video recordings
58	.0000	Formulate educational goals and learning objectives
59	.0000	Name and define three domains of learning

Differences between majors by competence were revealed on 24 of the 69 items at the .05 level, on 4 items at the .0001 level:

Item	Significance	Competency
10	.0000	Produce laminated visual
11	.0001	Produce 3 types of lettering
19	.0000	Produce materials for display
59	.0000	Name and define three domains of learning

Conclusions and Discussion

Based on the findings of this study, five conclusions were drawn.

1. The significant positive correlations between the upper 10 ranked competencies and the lower 10 ranked competencies for importance and level of competence are consistent with the findings of previous research. Rogers (1978) reported a strong relationship between preparation and attitude. According to the predictive value of preparation associated with utilization (Branscombe, 1969), it may be concluded that this tested group of student teachers will not utilize educational media frequently in the classroom.
2. Analysis of the ranked competencies for importance and competence indicates the student teachers have received "traditional" preparation in educational media. Therefore, the probability of their utilization of the newer technologies is decreased.
3. There are significant differences in the perceived importance of the competencies within the 5 tested majors. The chi square was significant on more than one-half of the items. Also, there are significant differences in the levels of competence. Approximately one-third of the items had significant chi squares.
4. The range of means from the Delphi panel was 2.69-3.97, with 64 items with a mean of 3.000 or above. Only 19 of the items rated by the student teachers had a rating of 3.000 or above. There are observable differences of perceptions of importance, with the student teachers being consistently lower.

5. There were four items on the inventory related to operation and utilization of microcomputers. These received the lowest ratings for importance of the 69. In addition, students felt least competent on these four items. Therefore, student teachers are exiting their preparation programs with poor attitudes and skills related to microcomputers which are becoming more prevalent in the schools daily.

These findings and conclusions offer a challenge to teacher educators to assess the content of teacher education programs.

APPENDIX A

Alabama A & M

Alabama State

Athens

Auburn University at Montgomery

Birmingham Southern College

Jacksonville University

Livingston University

Mobile College

Samford University

Troy State University

Tuskegee

University of Alabama

University of Montevallo

University of North Alabama

University of South Alabama

APPENDIX B

Ranked Competencies by Importance
Derived from Student Teacher Means

	Competency	Rank	Mean
59.	Name and define the three domains of learning (cognitive, affective, psychomotor)	1	3.560
30.	Set up, operate, and take down a cassette tape recorder	2	3.518
48.	Describe the major characteristics, advantages and disadvantages, and appropriate teaching/learning situations for chalkboards	3	3.503
29.	Set up, operate, and take down a record player	4	3.500
58.	Formulate educational goals and write learning objectives which specify outcomes, achievements, and evaluations for students	5	3.479
60.	Write learning objectives illustrating each of the three domains of learning	6	3.377
19.	Produce materials for display (bulletin boards, cloth boards, or other visual displays)	7	3.349
42.	Describe the major characteristics, advantages and disadvantages, and appropriate teaching/learning situations for games and simulations	8	3.344
61.	Construct the elements of a lesson on the basis of a model which represents a systematic approach to teaching and learning	9	3.324
47.	Describe the major characteristics, advantages and disadvantages, and appropriate teaching/learning situations for print (texts)	10	3.308

	Competency	Rank	Mean
25.	Set up, operate, and take down an overhead projector	11	3.277
62.	Develop the ability to explain and use behavioral models	12	3.231
41.	Describe the major characteristics, advantages and disadvantages, and appropriate teaching/learning situations for graphics (charts, graphs, diagrams, etc.)	13	3.109
40.	Describe the major characteristics, advantages and disadvantages, and appropriate teaching/learning situations for physical objects and models	14	3.100
28.	Set up, operate, and take down silent and sound filmstrip projectors	15	3.082
27.	Set up, operate, and take down a slide projector	16	3.031
45.	Describe the major characteristics, advantages, and disadvantages, and appropriate teaching/learning situations for disc recordings/tape recordings	17	3.012
55.	Identify, analyze, and utilize nonverbal forms of communication	18	3.004
20.	Produce graphics (chart, graph, diagram) appropriate to a specified learning objective and with evidence of technical quality	19	3.002
56.	Analyze the techniques, processes, and impact of the mass media (TV, radio, newspapers, etc.) on schools and students	20	2.996

	Competency	Rank	Mean
17.	Produce audio recording (cassette or reel-to-reel) appropriate to a specified learning objective and with evidence of technical quality	21	2.953
26.	Set up, operate, and take down an opaque projector	22	2.950
8.	Identify and demonstrate the elements of composition in the preparation of visuals	23	2.937
57.	Formulate objectives and strategies for utilizing mass media in teaching/learning situations	24	2.921
67.	Devise and employ validation procedures for teacher-made materials	25	2.920
50.	Evaluate the suitability of specific media on the basis of interests, experience, maturity, and powers of comprehension of a given group of learners	26	2.910
4.	Define and develop strategies for utilizing visual literacy skills for a specified group of learners	27	2.874
24.	Set up, operate, and take down manual and automatic 16mm projectors	28	2.872
46.	Describe the major characteristics, advantages and disadvantages, and appropriate teaching/learning situations for projected and nonprojected still pictures	29	2.830
36.	Describe the elements and procedures of a basic utilization plan (such as select, preview, use, followup, and evaluate) for educational media	30	2.829

	Competency	Rank	Mean
69.	Design and produce a set of visualized test items	31	2.828
44.	Describe the major characteristics, advantages and disadvantages, and appropriate teaching/learning situation for motion pictures	32	2.816
31.	Set up, operate, and take down a reel-to-reel tape recorder	33	2.810
5.	Define and develop strategies for utilizing aural literacy skills for a specified group of learners	34	2.794
65.	Devise media presentations to accompany commercial learning programs, i.e., textbooks	35	2.785
10.	Produce a laminated visual appropriate to a specified learning objective and with evidence of technical quality	36	2.781
68.	Employ validation procedures for commercially prepared materials	37	2.756
49.	Describe the major characteristics, advantages and disadvantages, and appropriate teaching/learning situations for video recordings	38	2.742
13.	Produce a handmade transparency appropriate to a specified learning objective and with evidence of technical quality	39	2.741
38.	Describe the major characteristics, advantages and disadvantages, and appropriate teaching/learning situations for programmed instruction	40	2.740

	Competency	Rank	Mean
66.	Assess media utilization procedures in terms of student growth and achievement according to specified instructional objectives	41	2.739
43.	Describe the major characteristics, advantages and disadvantages, and appropriate teaching/learning situations for educational television	42	2.735
64.	Determine the impact of media on learners from a psychological perspective	43	2.729
37.	Verify the appropriateness of educational media for a specified teaching/learning situation by analyzing the level of sophistication, the cost, the availability and the technical quality	44	2.715
52.	Explain rights, limitations and responsibilities of users of copyrighted material as outlined in the Copyright Law	45	2.690
35.	Identify sources of educational media materials through the use of selection aids such as Booklist, NICEM indices, etc.	46	2.666
9.	Produce a dry mounted visual appropriate to a specified learning objective and with evidence of technical quality	47	2.645
23.	Direct and assist students in preparation of their own media	48	2.643
63.	Assess the complexity of introducing educational change into the system	49	2.637

	Competency	Rank	Mean
33.	Perform simple maintenance operations on equipment (such as replacing bulbs)	50	2.632
53.	Describe the role of a school media specialist in providing services for classroom teachers	51	2.602
54.	Define components of the communication process and identify factors which enhance accurate transmission of messages	52	2.576
32.	Set up, operate, and take down a video recorder	53	2.538
51.	Display a knowledge base of educational media concepts by distinguishing among terms such as educational technology, instructional resources, software, hardware, and cost effective	54	2.534
21.	Produce black and white photographs appropriate to a specified learning objective and with evidence of technical quality	55	2.479
71.	Design, construct, and validate a self-instructional module in kit form	56	2.449
72.	Interpret the adequacy of research findings in the media area	57	2.444
70.	Design and produce an audio test	58	2.392
11.	Produce three types of lettering appropriate to a specified learning objective and with evidence of technical quality	59	2.373

	Competency	Rank	Mean
12.	Produce a paste-up suitable for duplication appropriate to a specified learning objective and with evidence of technical quality	60	2.366
14.	Produce a color lift transparency appropriate to a specified learning objective and with evidence of technical quality	62	2.320
18.	Produce a video recording (with camera and off-air) appropriate to a specified learning objective and with evidence of technical quality	62	2.320
22.	Produce paper color prints appropriate to a specified learning objective and with evidence of technical quality	62	2.320
15.	Produce a heat process transparency appropriate to a specified learning objective and with evidence of technical quality	64	2.264
16.	Produce 2x2, 35mm slides appropriate to a specified learning objective and with evidence of technical quality	65	2.228
39.	Describe the major characteristics, advantages, and disadvantages, and appropriate teaching/learning situations for computer assisted instruction	66	1.887
7.	Develop an understanding of current and expected developments in the telecommunications/computer area	67	1.859
6.	Design teaching/learning strategies incorporating the use of microcomputers for a specified group of learners	68	1.722
34.	Operate microcomputer to utilize commercially prepared software	69	1.679

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